

Kentucky Industrial Hemp Research Pilot Program

Kansas Dept. of Agriculture
Industrial Hemp in Kansas:
An Open Dialogue and Information Exchange
May 11, 2018

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Overview

- **Kentucky Pilot Program 2014-2018**
 - License Holder and University Research
 - Overview of 3 Primary Markets
- **Kentucky Industrial Hemp Laws**
 - Ky. Revised Statutes & Ky. Administrative Regulations
 - Application & Licensing
 - Program Fees
 - Inspection & Enforcement
- **Seed & Plant Acquisition**
 - International & Domestic; Certified Seed; Varieties List
- **Production Information & Industry Economics**
 - Economic Impact for 2017, Hemp Products
 - Yield Data
 - Agronomic Challenges

Commissioner Ryan Quarles's Strategic Aims for Industrial Hemp Program



- “Our strategy is to use KDA’s research pilot program to encourage the industrial hemp industry to expand and prosper in Kentucky.”
- “Although it is not clear when Congress might act to remove industrial hemp from the list of controlled substances, my strategic objective is to position the Commonwealth’s growers and processors to ultimately prevail as national leaders in industrial hemp production.”

Commissioner's Three Core Directives

- Empower Kentucky’s expanding community of industrial hemp growers and processors
- Ensure close cooperation with law enforcement
- Eliminate redundant steps and requirements for license holders and KDA Hemp Staff

Progress Report 2014-2018





2015 KY Industrial Hemp Pilot Projects

HEMP



KYIndustrialHemp.com

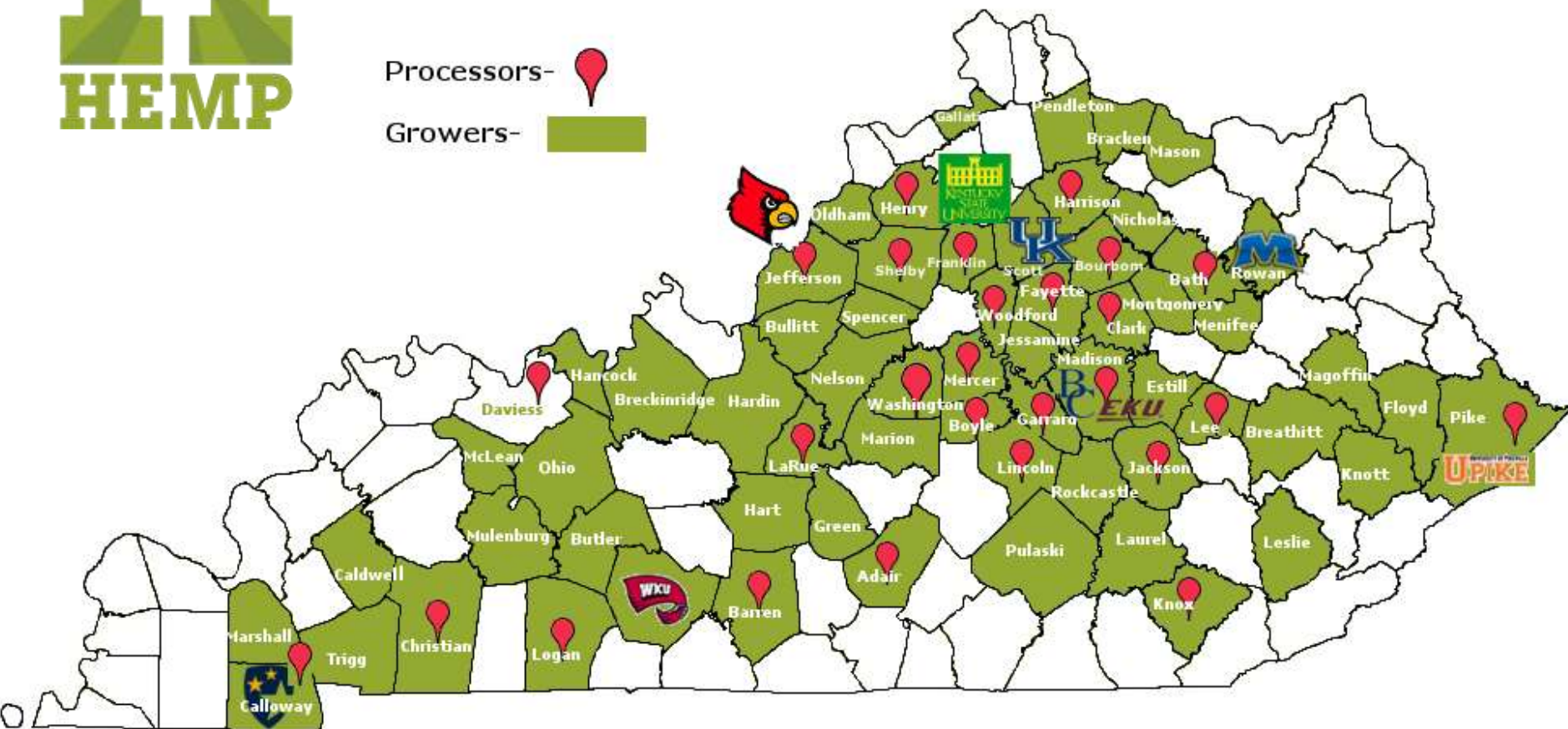


2016 Kentucky Industrial Hemp Research Pilot Program

Processors-



Growers-





2017 Kentucky Industrial Hemp Research Pilot Program

- Processors
- Growers



WWW.KYAGR.COM/HEMP



- Processors
- Growers

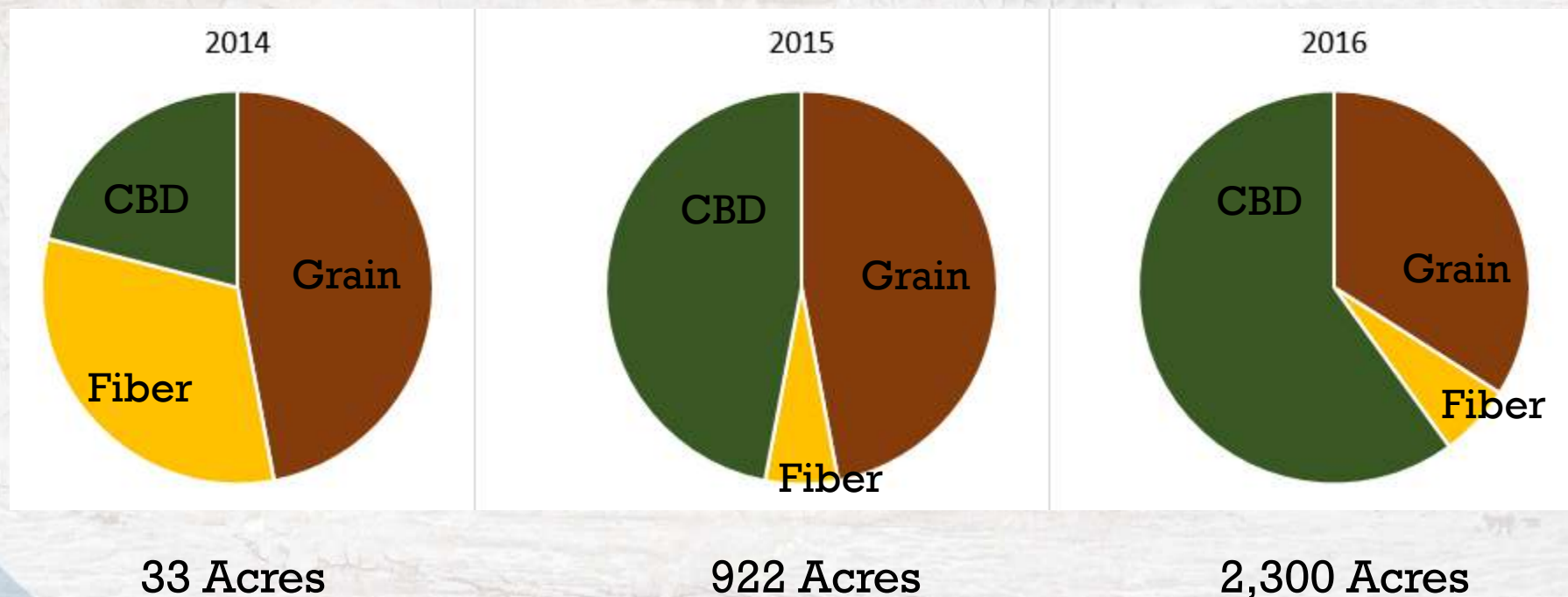


Kentucky Program Highlights

KDA Industrial Hemp Research Pilot Program											
Annual Overview											
Production Year	# University Projects	Approved Processors	Approved Growers	KY Counties with Hemp	Approved Acres	Planted Acres	Harvested Acres	% Grain/Seeds	% Fiber	% CBD	% CBD & Grain
2014	7	9	20	14	-	33	-	47%	32%	21%	
2015	8	29	99	41	1,742	922	500	47%	6%	47%	
2016	17	45	137	60	4,600	2,300	2,000	34%	6%	60%	
2017	17	49	204	71	12,800	3,200	2,300	36%	5%	27%	32%
2018 (Jan)	TBD	55	225	TBD	12,018	-	-	-	-	-	-
April 2018	11	52	210	72	14,000+						



Harvestable Components as a Percentage of the Annual Crop



* Based on *Planting Reports*. Varies slightly from end-of-year *Production Reports*.

University Research

- Under 2014 Farm Bill, Universities can also conduct hemp research like state depts. of ag
- Research projects range from basic agronomic, to stem retting, equipment for harvesting, and nutraceutical and industry applications
- University of Kentucky has variety trials and other studies published at <https://hemp.ca.uky.edu/>

2018 Affiliate Projects



Previous Years' Affiliate Projects



Three Primary Markets



Seeds and Grain



Fiber

**Plant Extracts,
Phytocannabinoids**



Seeds and Grain



Seeds and Grain



Fiber



Floral Material



Floral Material



Dual Purpose



Photo and Info From a Kentucky Hemp Farmer J.T. Workman:

- Note: farmer said this particular machine did not work well.
- “Hemp can be harvested for multiple end uses if proper steps are taken.
- Seeding and fertilizing rates have to be determined in such a way that the plant will yield CBD, fiber, and seed without one hindering the other.
- Harvest equipment will need to be specialized. There are some machines that can harvest 2 or even 3 at once but field conditions and timing are key.”



**We're still learning about
harvesting methods...**

Kentucky Industrial Hemp Laws



Research Authorized by 2014 Farm Bill

7 U.S.C. § 5940. LEGITIMACY OF INDUSTRIAL HEMP RESEARCH. (also known as Section 7606 of the 2014 Farm Bill)

Who may grow:

- Institutions of higher education; and
- State departments of agriculture.

Purpose:

- For the purposes of research conducted under an agricultural pilot program or other agricultural or academic research.
- **AGRICULTURAL PILOT PROGRAM.**—The term “agricultural pilot program” means a pilot program to study the **growth, cultivation, or marketing** of industrial hemp



Industrial Hemp Defined by Federal Law

- Section 7606 of the 2014 Farm Bill provides this definition:
 - “The term ‘industrial hemp’ means the plant *Cannabis sativa* L. and any part of such plant, whether growing or not, with a delta-9 tetrahydrocannabinol concentration of not more than 0.3 percent on a dry weight basis”
- Kentucky law designed to change if industrial hemp is reclassified or if state pilot program authorization is modified



Federal Changes Coming?

Senator McConnell and Commissioner Quarles Announce Hemp Legislation



Download photos [HERE](#).

FRANKFORT, KY – U.S. Senate Majority Leader Mitch McConnell (R-KY) and Kentucky Commissioner of Agriculture Ryan Quarles (R-KY) announced today the impending introduction of legislation in the United States Senate to support Kentucky's hemp industry. The *Hemp Farming Act of 2018* will legalize hemp as an agricultural commodity and remove it from the list of controlled substances.

Hemp ≠ Marijuana (KRS 218A.010)

- (27) "Marijuana" means all parts of the plant *Cannabis* sp., whether growing or not; the seeds thereof; the resin extracted from any part of the plant; and every compound, manufacture, salt, derivative, mixture, or preparation of the plant, its seeds or resin or any compound, mixture, or preparation which contains any quantity of these substances. The term "marijuana" does not include:
- (a) Industrial hemp that is in the possession, custody, or control of a person who holds a license issued by the Department of Agriculture permitting that person to cultivate, handle, or process industrial hemp;
 - (b) Industrial hemp products that do not include any living plants, viable seeds, leaf materials, or floral materials;
 - (c) The substance cannabidiol, when transferred, dispensed, or administered pursuant to the written order of a physician practicing at a hospital or associated clinic affiliated with a Kentucky public university having a college or school of medicine;
 - (d) For persons participating in a clinical trial or in an expanded access program, a drug or substance approved for the use of those participants by the United States Food and Drug Administration;
 - (e) A cannabidiol product derived from industrial hemp, as defined in KRS 260.850; or
 - (f) A cannabidiol product approved as a prescription medication by the United States Food and Drug Administration;

Kentucky Hemp Laws

Kentucky Revised Statutes – KRS 260.850 to 260.869

- <http://www.lrc.ky.gov/Statutes/chapter.aspx?id=38484>
- No person shall cultivate, handle, process, or market industrial hemp in the Commonwealth unless the person holds a hemp program license from KDA.

Kentucky Administrative Regulations – 302 KAR Chapter 50 Industrial Hemp

- <http://www.lrc.ky.gov/kar/TITLE302.HTM>
- 020 Policies and Procedures for Growers
- 030 Policies and Procedures for Processors & Handlers
- 040 Affiliated Universities and Colleges
- 050 THC Sampling and Testing; Post-Testing Actions
- 050 THC Sampling and Testing; Post-Testing Actions
- 060 Fees and Forms
- 070 Prohibited Products

Application & Licensing

- Annual application process for growers, processors and universities (processors can have multi-year license)
- Criteria for application review set by regulation (includes having a marketing plan, seed/material source, GPS coordinates and a background check)
- Kentucky issues separate licenses for growers, processors and universities

Grower License

- Authorizes the possession of live plants in fields, greenhouses, and storage locations (also in transit)
- Growing may include drying, chopping or grinding
- Growers may market crop to licensed processor in-state or to a licensed processor/entity in another hemp program state

Processor/ Handler License

- Processors cannot have live plants
- Process harvested crop into products (wholesale or retail) to market
- This license category also includes brokers, labs, seed cleaners

Program Fees

- KY has 3 full-time hemp staff, and employs 6 part-time inspectors to collect samples
- Considerable time spent by leadership and legal staff
- Program Fees do not cover Program Costs, but help offset

Fee Type	Program Fees*	Fee Due Date
Application Fee	\$100 (nonrefundable; does NOT apply to Participant Fee)	@ time of application
Participant Fee – GROWER	\$400 per growing address NOTE: GPS coordinates for all growing locations (fields and greenhouses/indoor growing sites) and storage locations are submitted on the application. Changes to growing locations after the signing the <i>Grower Licensing Agreement</i> will incur a Site Modification Surcharge (see below).	@ signing of <i>Licensing Agreement</i> at Orientation
Participant Fee – PROCESSOR / HANDLER (Due annually)	Fees per Processing Type <ul style="list-style-type: none"> • Handlers - \$500 annual fee <ul style="list-style-type: none"> ○ An example of a “handler” includes any private lab or service provider, such as a seed cleaner. • Fiber Processor - \$500 annual fee • Grain Processor - \$500 annual fee • Floral Material Processor - \$3,000 annual fee <p>NOTE 1: License holders working with multiple harvestable components will be required to pay an annual fee for EACH component.</p> <p>NOTE 2: GPS coordinates for all processing, handling, and storage locations must be submitted with the application submission. Changes to processing sites following execution of the <i>Processor Licensing Agreement</i> will incur a Site Modification Surcharge (see below).</p>	@ signing of <i>Licensing Agreement</i> , annually, at Orientation
Site Modification Surcharge (SMS)	\$750 / each change or addition of GPS coordinates Defined as any change to the GPS coordinates for processing or growing locations at an existing address on the <i>Licensing Agreement</i> , or for the addition of a GPS coordinate not already on the <i>Licensing Agreement</i>). Storage location changes or additions will not incur the SMS.	@ submission of <i>Site Modification Request</i> form
Secondary Pre-Harvest Sample, Post-Harvest Retest, or Product THC Test Fees	\$250 per instance These tests are only required if warranted by initial test results, or at KDA’s discretion if a grower fails to harvest within 15 days of first sampling.	Within 15 days of invoice by KDA

* Fees may be submitted in the form of a check or money order made payable to Kentucky State Treasurer.

Inspection & Enforcement

- Close cooperation with Law Enforcement is Essential to Kentucky's hemp program!
 - License holders “Consent to entry onto, and inspection of, all premises where hemp or other cannabis materials are located, or licensed to be located, by representatives of the department and law enforcement agencies, with or without cause, with or without advance notice”
 - Every growing and processing site is inspected.
 - Hemp and marijuana can be visually identical, making testing essential.
 - We have had incidents of hemp being used to hide illicit marijuana cultivation.



Inspection & Enforcement

- **Every plot is sampled, but samples are selected for testing based on risk**
 - 5% of plots from Certified seed are tested; 50% of plots from non-certified varieties are tested; 100% of “Varieties of Concern” are tested
- **Sampling**
 - What part of the plant? Top 20 cm.
 - When? (No more than 15 days before harvest.)
 - Products too? Yes, we test products during processor inspections, but not after leaving the facility. License holder must conduct batch testing on all lots.
 - http://www.kyagr.com/marketing/documents/HEMP_LH_THC-Sampling-Testing-Post-Testing-Procedures.pdf
- **THC Analysis:** KY measures Delta-9 THC concentration after decarboxylation; No removal of stems or seeds.
- **Optional Re-Test offered;** Destroy crop if still above 0.3%
- **Long-Term Goals:** Proven hemp varieties with stable genetics.



Movement of Hemp Materials

Table 1: In-Program Materials

Harvestable Component	Form of Material
Fiber	whole stalks, including leaf and seed materials
	bales of stalks
Roots	raw
Leaves or Floral Material	fresh, unprocessed
	dried
	ground
Grain (food product)	raw, unprocessed
Seed (for replication)	whole seed, cleaned or uncleaned
Transplants	rooted plants
	cuttings

Table 2: Out-of-Program Materials

Harvestable Component	Form of Material
Fiber	whole stalk, stripped of leaf and seed materials
	decorticated fiber (bast and/or hurd)
Roots	dried
	ground
Leaves or Floral Material	cannabinoid extract
	all products derived from extracts
Grain (food product)	crushed, ground, etc.
	dehulled
	seed cake / meal
	roasted or toasted AND proven nonviable
	oil
Out-of-program transfers of these materials are compliant with KDA policy; some federal agency opinions may differ. Transfers are at your own RISK.	

See also: 302 KAR 50:070 Prohibited Products and
KRS 218A.010 definition of marijuana

Seed & Plant Acquisition



Seed & Plant Acquisition

- KDA must approve all seed or plants entering the program; compliant testing results of the parent must be provided.
- KDA allows International Seed Imports and Out-of-State Domestic Seed/Propagule Purchases.
 - Seed/plants brought to KY must come from an entity licensed by their state's hemp program.
 - Transporting across state lines is at your own risk. This interstate transfer is legal in KY, but other state's could seize in transit and charge with trafficking.
 - Movement across state lines is supported by Federal Consolidated Appropriations Act of 2018.
- All planting materials must arrive at KDA for inventory and distribution.
- Performance of varieties/strains and their THC results are tracked.



Seed & Plant Acquisition

- **KDA Summary of Varieties List (86 varieties since 2014)**
 - http://www.kyagr.com/marketing/documents/HEMP_LH_Summary-of-Varieties.pdf
- **Certified Seed process is the same as any other crop (Association of Seed Certifying Agencies /KY Seed Improvement Association**

[illegible]

Seed & Plant Acquisition

- We support other state hemp programs, but please do not call Kentucky Department of Agriculture looking for seed! We have a voluntary list of companies in Kentucky who may sell seed/plants:
 - “2018 Seed and Transplant Providers List”
http://www.kyagr.com/marketing/documents/HEMP_LH_Seed-and-Transplant-Providers-List_2018.pdf
- Warnings:
 - For non-certified seed/plants – the “variety” or strain name listed may not be consistent.
 - Genetics cannot currently be patent protected, but tradenames can be.
 - Past THC compliance is no guarantee of future THC levels, especially when growing in different location.

The image shows a large-scale agricultural field of green hemp plants. The plants are densely packed and have tall, upright stalks with small, serrated leaves. In the background, a thick line of green trees forms a forest under a pale, overcast sky. The text "Production Information & Industry Economics" is overlaid in the center of the image in a bold, white, sans-serif font.

Production Information & Industry Economics

Kentucky Program Highlights

2017 Processor Production Reports

- \$7.5 Million Paid to Kentucky Growers
- \$25.6 Million Capital Investments made
 - 81 Full-time Jobs Created
- \$16.7 Million Gross Product Sales



Hemp-Derived Products

Composite Materials



Fabric



Animal Bedding



Construction



Products for Human Consumption

Protein Powder



Baking



Cosmetics



Hulled Grain



Seed Oil

Cannabinoid Extracts



Production Report Data*

<u>2017</u>	<u>Grain</u>	<u>Fiber</u>	<u>Floral</u>
Growers	20	14	112
Acres Planted	1,227	159	1,883
Acres Harvested	826	120	1,371
Avg. Yield lb/acre**	518	2,556	1,024
Avg. Price per lb	\$1.70^	\$0.34	\$7.20

**Preliminary; analysis of 2017 production report data is not complete.*

***Average Yield was calculated only from plots with reported yields above zero. (Does not include dual purpose Grain & Floral)*

^ Typical price is under \$1 per pound for crushed grain; average includes seed; some farmers received per acre price guarantee



2017 Production Report Data*

- Grain Only – 1,227 Acres
- Floral Only – 938 Acres
- Grain & Floral, Dual Purpose – 941 Acres

Yield Comparison

	<u>Single</u>	<u>Dual Purpose</u>
Grain (lbs/acre)	518	603
Floral (lbs/acre)	1,088	969

**Preliminary; analysis of 2017 production report data is not complete.*



Agronomic Challenges

- Hemp is still a “new” crop, need time for research to confirm best practices, varieties
- No (or limited) EPA approved pesticides
 - Pre-plant herbicide, cultivation, early plant emergence and canopy helps with weed control;
 - Some problems with Powdery Mildew and Pythium Root Rot – Learn more: www.kyhempdisease.com
 - Insects are not a major problem in KY currently
- Planting with transplants/clones is expensive for field production
 - Seed depth is critical for stand emergence
- Hemp needs fertilizer!

Contact KDA

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